William G. Cobau

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Summary

Results oriented scientist with a broad technical background.

- Innovative problem solver.
- Experienced team leader who bridged software, hardware and physics.
- Managed large projects with diverse personnel, e.g. scientists, engineers and technicians.
- Proven ability to analyze technically complex problems and to identify key issues and priorities for politically charged situations.
- Deadline oriented.
- Excellent communication and interpersonal skills.
- Experience building technical systems that integrate computers with various mechanical and electronic systems.
- Extensive computer experience using Windows, Macintosh, UNIX, VMS, and mainframe systems. Programming in C++ and FORTRAN.

Leadership

Results Oriented: • Led team that measured and published top quark (a sub-atomic particle) production cross section. • Undergraduate thesis in biophysics resulted in publication. • More than 50 publications.

Innovation: • Within strong technical team, personally identified key deficiency in analysis approach, developed enhancement to analysis and convinced team of its applicability.

Mentoring: • Guided Ph.D. students in research for dissertations.

Teamwork

Project Management: • Led a research team of 10 scientists resulting in scientific publication of measurement of top quark production cross section. • Managed a large mission critical system essential for the operation of the $100M D-Zero experiment. Responsibilities include understanding technical limitations of the system, planning the operations of the system based on these limitations and the needs of the data consumers, constructing a political consensus, implementing the group‘s decision and conducting the day-to-day operations of the system. • As part of small team, maintained and operated thesis experiment on a 24 hour per day basis. • Supervised technicians.

Technical Support: • Provided first level support for 24 hours per day operations team.

Communications Skills: • Regularly presented results to internal meeting to inform and persuade. • Presented new research results at international conferences and at university seminars. • Co-wrote document explaining the importance of the collaboration’s physics results geared to the non-physicists. • Wrote scientific articles for publication. • Documented projects using HTML for access over the World Wide Web.

Diversity Management: • Experienced with multinational and gender diverse teams as team leader, team member, advisor and service provider. • Fluent in (Brazilian) Portuguese.

Technical Skills

System Integration: • Managed large data acquisition system involving integration of computers with electronic detectors. • Debugged combined analog and digital electronics system. • Designed, built, installed, and maintained large scintillator detector for thesis experiment resulting in increased data taking efficiency and higher quality data. • Designed, built, installed, and maintained digital electronics for thesis experiment essential for the operation of project.

Computer Skills: • Prototyping in C++ of large data analysis program. Package heavily uses Standard Template Library (STL), objects, inheritance and polymorphism. Project addresses issues of portability and class design. • Programming of analysis programs in FORTRAN and job control language. • Used extensively of UNIX and VMS systems. • Programmed detailed simulation of thesis experiment including microscopic processes. • Involved in conversion of thesis experiment's entire software library between mainframe computer systems. • Used desktop publishing techniques to produce dissertation. • Expert in setup and use of personal computers.

Problem Solving: • Developed a new technique essential for the discovery of the top quark. • Developed and maintained a new software tool which improved data acquisition quality, solving a long running need.

Analysis: • Completed analysis that led, in part, to the discovery of the top quark. • Designed and wrote programs to reduce large data sets to manageable size. Used existing software tools or developed new ones to search for specific events and to understand behavior of a large apparatus. • Wrote Ph.D. dissertation on neutrino scattering. Thesis included detailed understanding of a large experiment resulting in important physics results. • Performed calibration and alignment of thesis experiment.

Work History

Research Associate, Funded by University of Maryland at Fermi National Accelerator Laboratory, 1992–present.

Research Assistant, Funded by Michigan State University at Fermi National Accelerator Laboratory, 1984–1992.

Education

Michigan State University, Ph.D. in Physics, 1992.

Michigan State University, M.S. in Physics, 1988.

Princeton University, A.B. in Physics, 1983.

Additional Information

References and complete list of publications available on request.